

## Claims

- [1] A method for allocating downlink radio resources in a wireless portable network system, comprising:
- (a) determining a modulation and channel encoding level of the respective radio resources according to radio channel characteristics;
  - (b) generating subscriber station information on the radio resources;
  - (c) mapping the subscriber station information to common control information;
- and
- (d) transmitting the allocated radio resource and the common control information to the downlink.
- [2] The method of claim 1, wherein (c) comprises:
- mapping modulation and channel encoding level information of the respective radio resources to the common control information; and
  - mapping time-based and frequency-based offset information of the respective radio resources to the common control information.
- [3] The method of claim 1, wherein the subscriber station information comprises identifier information on the subscriber stations which access the respective radio resources, and information on numbers of the subscriber stations.
- [4] The method of claim 1, wherein the common control information is transmitted in advance to the subscriber station through a broadcast channel.
- [5] The method of claim 2, wherein the time includes data symbols, and the frequency includes subcarriers.
- [6] A method for accessing downlink radio resources in a wireless network system, comprising:
- (a) allowing a subscriber station to receive a radio resource and a common control information block which stores subscriber station information on the radio resource;
  - (b) retrieving a corresponding subscriber station identifier within the common control information block;
  - (c) reading a modulation and channel encoding level of the corresponding radio resource from common control information corresponding to the retrieved subscriber station identifier, and determining a demodulation and channel decoding level;
  - (d) checking the corresponding radio resource from the common control in-

- formation corresponding to the retrieved subscriber station identifier; and  
(e) accessing the checked radio resource and receiving data information corresponding to the subscriber station by the determined demodulation and channel decoding method.
- [7] The method of claim 6, wherein (d) comprises reading symbol-based offset information and subcarrier-based offset information of the corresponding radio resource from the common control information.
- [8] The method of claim 6, wherein the common control information block is transmitted through a broadcast channel.
- [9] The method of claim 6, wherein receiving data information in (e) comprises receiving data information to which an identifier of the corresponding subscriber station is provided from the accessed radio resource.
- [10] A downlink frame in a wireless portable network system, comprising:  
a common control information block including identifiers of subscriber stations on allocated radio resources, information on numbers of identifiers of the subscriber stations, information on modulation and channel encoding on radio resource blocks, symbol offset information on the radio resource blocks, and subcarrier offset information on the radio resource blocks; and  
a plurality of radio resource blocks having the identical modulation and channel encoding level, and including data information having the subscriber station identifiers.
- [11] A base station device for allocating radio resources in a wireless portable network system, comprising:  
a base station controller including a radio resource allocator for allocating downlink data of subscriber stations which use the same modulation and channel encoding level to a single radio resource, and mapping information on the subscriber stations and the modulation and channel encoding level information to the common control information block;  
a digital signal transmitter for modulating and channel-encoding the radio resources allocated by the radio resource allocator with a specified identical modulation and channel encoding level;  
an analog signal transmitter for converting the modulated and channel-encoded digital signals into analog signals, and transmitting the analog signals to the subscriber station.
- [12] The base station device of claim 11, wherein the radio resource allocator

comprises:

a modulation level establisher for establishing a modulation level of the data to be allocated to a radio resource according to a characteristic of a radio channel, and mapping the level information to the common control information block;

a channel encoding level establisher for establishing a channel encoding level of the data to be allocated to the radio resource according to a characteristic of a radio channel, and mapping the level information to the common control information block;

a subscriber station establisher for mapping a subscriber identifier assigned to the radio resource to a common control block; and

an offset establisher for establishing a position and a size of the radio resource on a frame by symbol offsets and subcarrier offsets, and mapping the offset information to the common control information block.

- [13] A subscriber station device for accessing radio resources in a wireless portable network system, comprising:
- an analog signal receiver for receiving analog radio signals and converting them into digital signals;
- a station controller including a common control information reader for reading transmitted common control information, and retrieving information on the radio resource to be accessed by the subscriber station device; and
- a digital signal receiver for performing demodulation and channel decoding according to the modulation and channel encoding level of the radio resource retrieved by the common control information reader, and receiving data information.
- [14] The subscriber station device of claim 13, wherein the common control information reader comprises:
- a subscriber station identifier retriever for retrieving radio resource information including subscriber station identifiers from the common control information block;
- a modulation and encoding level reader for modulation and encoding level information of the retrieved radio resource; and
- an offset information reader for reading symbol-based offset information and subcarrier-based offset information of the retrieved radio resource.